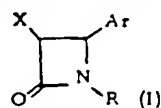


84325 D/46 B03 SAGA 07.03.80  
SAGAMI CHEM RES CENTRE  
07.03.80-JP-028057 (01.10.81) C07d-205/08 C07d-401/04 C07d-403/04 C07d-405/04 C07d-407/04 C07d-409/04  
Growth regulator intermediate beta-lactam cpds. - convertible into alpha oxyacid amide(s) or alpha amino acid amide(s)

β-Lactam cpds. of formula (I) are new:



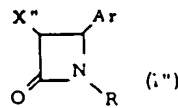
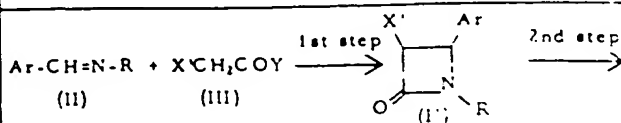
(Ar = heteroaromatic gp. or substd. phenyl of formula p-Y-C<sub>6</sub>H<sub>4</sub>-;  
Y = F, OH or protected OH;  
R = alkyl, aryl or heteroaromatic gp;  
X = amino, azido, benzyloxy or OH;  
provided that when X = azido, Ar is not p-fluorophenyl).

USE/ADVANTAGE

(I) on cleavage of the β-lactam ring can be converted into α-hydroxy acid amides or α-amino acid amides, e.g. tryptophan, tyrosine or p-fluorophenylalanine amides. p-Fluorophenylalanine amide is useful as a growth regulator for animals; other amino acid amides can be converted into physiologically active substances.

PREPARATION

B(7-D1). 1



(X' = benzyloxy or azido;

X'' = OH or amino;

Z = halogen or OH;

provided that when X' = azido, Ar is not p-fluorophenyl).  
1st step: The reaction is conducted in a solvent, e.g. PhH, PhMe, THF, CH<sub>2</sub>Cl<sub>2</sub>, in presence of a tertiary amine, e.g. Et<sub>3</sub>N, Pr<sub>3</sub>N, Bu<sub>3</sub>N, pyridine, N-methylpiperidine, N-methylpyrrolidine, 1,8-di-azabicyclo [5.4.0]-7-undecene, at a temp. of -78 to 100°C.  
2nd step: The reaction is achieved by hydrogenolysis with

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a catalyst, e.g. Pd black, Pd-C, in a solvent, e.g. MeOH, EtOH, CH<sub>2</sub>Cl<sub>2</sub>, CHCl<sub>3</sub>, PhH, PhMe, THF, MeCN, DMF, at from room temp. to 150°C, pref. 50-100°C.

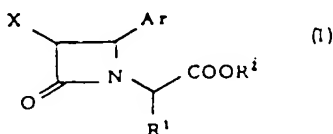
EXAMPLE

To a soln. of 4.00 g 2-furylmethylideneaniline and 3.07 g Et<sub>3</sub>N in 50 ml PhH was dropwise added slowly a soln. of 5.61 g benzyloxyacetyl chloride in 50 ml PhH under ice cooling, and the mixt. was slowly warmed up to room temp., stirred for 15 hrs., then washed with water, dried on MgSO<sub>4</sub>, and evapd. in vacuo to give 7.64 g yellow solid. This was chromatographed on a column of silica gel (Wako gel C-200) and eluted with n-hexane-EtOAc (9 : 1) to give cis-1-phenyl-3-benzyloxy-4-(2'-furyl)azetidin-2-one as white crystals, m.pt. 100-101°C, and the trans-isomer, as white crystals, m.pt. 115.5 - 117°C. (9ppW52).

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84326 D/46 B03 SAGA 07.03.80  
SAGAMI CHEM RES CENTRE  
07.03.80-JP-028059 (01.10.81) C07d-205/08  
Azetidinone cpds. - which are cleavable to form physiologically active dipeptide(s)

Azetidinone cpds. of formula (I) are new:



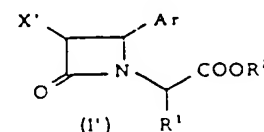
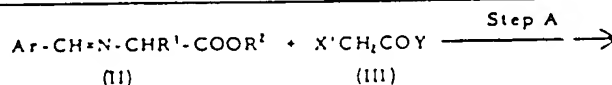
(Ar = aromatic gp.;  
R<sup>1</sup> = H, alkyl or aryl;  
R<sup>2</sup> = alkyl or aryl;  
X = amino, acylamino, azido, benzyloxy or OH).

USE/ADVANTAGE

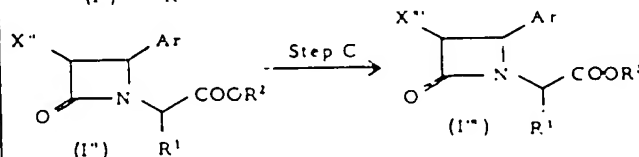
(I) on cleavage of the azetidinone ring can be converted into physiologically active dipeptides.

PREPARATION

B(7-D1) N(2-F1, 2-F2)



Step B  
Step B'



(X' = benzyloxy or azido;

X'' = OH or amino;

X''' = acylamino;

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